

SPECIFICATION AMENDMENTS

Page 11, between lines 34 and 36, after the description of Figure 3, please insert:

Figure 4 is a schematic view of the production steps.

Page 11, line 36 to page 12, line 24 please replace the paragraph with the following amended paragraph:

According to ~~figure 4~~ Figures 1 and 2, a portion of an assay chip 2 is shown to illustrate the biological function of a membrane protein 3. This assay chip 2 is the essential pre-requisite for the investigation of binding activities of the membrane proteins 3 which now combines both, the advantages of the supported 4 and of the free standing lipid bilayer membrane 5 as discussed above. The assay chip 2 comprises an array substrate 28 and a 300 nm thick silicon nitride layer 6 having sections in form of arrays 7 of pores 8 of diameters in the range of 50 nm and 2 μm .

Page 14, line 18 to line 27 please replace the paragraph with the following amended paragraph:

Figure 2 depicts in a schematic way the design of a assay chip 2 which comprises in this embodiment ~~a array~~ an assay substrate 28 of 100 mm^2 total area having a 300 nm thin silicon nitride layer 6 with the actual nanopore array 7. The size of the silicon nitride membrane section 29 having the actual nanopore arrays 7 is about 1 mm^2 . A nanopore array section 7 of $400 \times 400 \mu\text{m}$ comprises nanopores 8 having diameters in the range of 50 to 2000 nm (indicated at 30). The distance of the nanopores 8

to each other (the pitch) is chosen to be in the range of their diameter 34
30.

Page 15, line 27 to line 34 please replace the paragraph with the following
amended paragraph:

Figure 3 schematically shows a process for manufacturing the nanopores
in order to achieve a chip 32 comprising the substrate 28 and the support
layer 6 with the nanopores 8, as set forth in Figure 2. First, the nanopores 8
are replicated by hot embossing technique: As seen in Figure 4, a stamp
33 (~~FIG. 3A~~) is pressed into PMMA 34 (molecular weight 25 kg/mol) spin-
coated to a thickness of 330 nm on a Si₃N₄ (260 nm)/Si (300 to 360 μm)/
Si₃N₄ (260 nm)/Cr (40 nm) substrate 35.